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ABSTRACT

Briefly defined, Reading Recovery is a tutorial for children who are having difficulty learning to read and write after approximately one year of school. Although it is usually described as an early intervention program, Reading Recovery defies a simple definition, since there are layers of intersecting variables. This educational report summarizes what is known about Reading Recovery and what has been learned through research connected with the program. First, the report briefly describes Reading Recovery. Then, it reviews research on program success, on teaching and learning, and on teacher development. Finally, it presents research related to implementation. The report notes sound critical reviews where they are available. (Contains 94 references.) (NKA)

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Reading Recovery: A Review of Research

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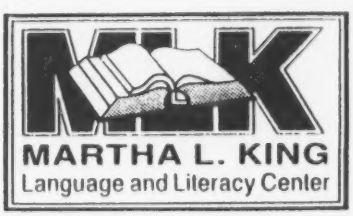

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Reading Recovery:
A Review of Research

READING RECOVERY: A REVIEW OF RESEARCH

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Reading Recovery demonstrates what is possible when we put into action what we know about how young children learn literacy; in doing so, it challenges present systems and prompts both visionary thinking and problem solving. Briefly defined, Reading Recovery is a tutorial for children who are having difficulty learning to read and write after approximately one year of school. It is usually described as an early intervention program; however, Reading Recovery defies a simple definition. There are layers of intersecting variables, many of which are not obvious even to those who teach in the program and/or have studied it intensively. Teaching procedures, adjustment of instruction to learners, instructional decision-making, training and self-reflection on the part of teachers, ongoing evaluation and research all contribute to Reading Recovery's success.

The design of the program supports these interacting variables. Unique features and results of Reading Recovery have captured public attention in a way unprecedented for a "program." I will summarize what we know about Reading Recovery and what we have learned through research connected with the program. First, Reading Recovery will be briefly described. Then, research on program success, on teaching and learning, and on teacher development will be reviewed. Finally, research related to implementation will be presented. Where they are available, sound critical reviews are noted.

Reading Recovery as an Early Intervention Program

Since Reading Recovery has been described in numerous publications, no attempt will be made to describe the program in detail here (for further information see Clay, 1993a and 1993b; Clay, in press; Pinnell, Fried, & Estice, 1991; Pinnell, 1989; DeFord, Lyons, & Pinnell, 1991; and Lyons, Pinnell, & DeFord, 1993). The program is designed to help lowest achieving first-grade children develop

effective strategies for reading and writing. In Reading Recovery, these initially struggling children make accelerated progress reaching average levels for their particular class or group. The goal is to assist children in constructing the inner control that will enable them to continue to learn independently as they read more difficult and varied texts (Clay, 1991a). This ability to learn more about reading is characteristic of good readers.

The program in the U.S. involves first graders only, although when full coverage (defined as approximately 20% of the age cohort) is achieved and more resources become available, continuing instruction at the beginning of second grade is recommended for those children who enter Reading Recovery late in their first grade year. Children are selected for Reading Recovery through a combination of teacher judgment and independently administered assessments (Clay, 1993a, 1993b); they receive individual tutoring until they show evidence of independent, strategic reading of texts and can demonstrate ability to participate in classroom reading instruction at average levels for their class or school. Then, the program is "discontinued" for that student and another enters the program.

Reading Recovery Teacher Training

Reading Recovery operates within an educational system through four key programs: (1) intensive, daily, one-to-one, thirty-minute instruction for children; (2) an inservice program through which educators are instructed in teaching; (3) a network of professional support for teachers and administrators involved in the program; and, (4) a research program to continuously monitor program results and provide support for participating teachers and institutions (see Clay & Watson, 1982; Gaffney & Anderson, 1991).

The inservice program for teachers is a year-long experience during which teachers meet in weekly classes taught by a trainer (called "teacher leader" in the U.S., "tutor" in New Zealand, Australia, and England, with both terms used in Canada). Extensive use is made of a one-way glass screen to view live lessons. Teachers in the class take turns teaching behind the screen while their peers observe, and, guided by the leader, talk aloud about the lesson. This process of articulating observations is a hallmark of initial training. Trained teachers participate continuously in professional development as long as they are involved in Reading Recovery. The program also

provides continued training at conferences for teachers and an annual institute for teacher leaders.

Implementation and Quality Control

A structured process guides the dissemination and expansion of Reading Recovery. School districts enter a long-term planning process beginning with preperation of a leader who is specially prepared to train teachers and oversee the program. Pursuing a full year course of study, teacher leaders are prepared at university training sites. At the same time, a "site coordinator" undertakes administrative leadership for the program in a given school district or consortium of districts. As part of the agreement with the regional training center, the sponsoring agency (school district, or consortium), agrees to follow the *Guidelines and Standards for the North American Reading Recovery Council* (1993). The guidelines contain standards that are essential for assuring quality services to children.

The name "Reading Recovery" has been a trademark and/or service mark of the Ohio State University since December 18, 1990, an action taken to identify sites that meet the essential criteria as defined in the guidelines, for a Reading Recovery program. On an annual basis, programs are granted a royalty free license to use the name. Every district that has a Reading Recovery program is reviewed annually to determine if the district has met the standards and guidelines. Reading Recovery is a non-profit program; training is a university function, not a business venture.

Current Status in North America

Reading Recovery was piloted in the U.S. in 1984-85 and has been adapted and tested across sites that vary by region, economic group, culture, and linguistic background. In 1994, 23 regional training centers existed to prepare the key personnel in the U.S., teacher leaders. Reading Recovery programs are supported by a network of 395 Reading Recovery sites representing 5,523 schools that span North America. Personnel at sites within this network provide training and continuing education, coordinate the collection of research data on Reading Recovery children, disseminate awareness information, and develop program guidelines. Over ten years, from 1984 through 1994, 388 Reading Recovery teacher leaders and 8,182 Reading Recovery teachers have served a total of

145,193 "at-risk" first grade students in 1,905 U.S. school districts. In 1993-94, 33,243, or 82% of all first graders who completed the program met the stringent discontinuing criteria after an average of 17 weeks of daily lessons. It is estimated that the program will serve more than 80,000 children during the 1994-95 academic year.

Evidence of Program Effectiveness

A body of research and program evaluation illuminates both the achievements of Reading Recovery and the interacting factors contributing to success. This section presents the research that provides evidence of success. Critics of the program (Hiebert, 1995; Barr & Shanahan, in press) suggest that research does not go far enough; indeed, traditionally designed empirical studies are few in number and scope because of the limitations involved in large scale field research. Longitudinal studies have been limited by loss of subjects and lack of resources to conduct exhaustive testing programs; and almost all have been conducted on new implementations during their first year. Most system implementers want to study the program from its onset even though we know that it takes about three years to pick up pace and deliver a quality intervention. Nevertheless, the body of evidence is considerable, particularly if one considers the range and variety of settings within which the program has been tested. For example, extensive information on individuals has been collected in New Zealand (Kerslake, 1992), the United States (The Ohio State University, 1994), and England (Hobsbaum, 1994). At this point in time, Reading Recovery has gone further than any other early intervention program to collect data on every subject involved.

Replications of the Program

Over the last 10 years, Reading Recovery has accomplished what it is designed to do. A total of 88,187 individuals have made accelerated progress, caught up to their grade level peers, and become independent readers and writers. In every single case what happens to each individual in each lesson is recorded and provides data which documents the changes occurring. Reading Recovery records the progress of individual learners towards the tough exit criteria of average band performance in their classrooms. The

appropriate group data to report are the percentages of subjects who are discontinued and the percentage who are referred for further services.

Discontinuing a child's program requires testing on a range of measures including independent reading of texts that the child has not seen before. An impartial tester administers the assessment rather than the child's own teacher. The child must be able to read with ease a text that is at or above average for his/her class or grade; analysis of the reading must provide evidence that the reader is using effective strategies independently.

Early Research and Continuing Program Evaluation in New Zealand

Clay's initial research in New Zealand was conducted in several phases, from a development project (1976-1977), to field trial research (1978), to one-year follow-up research and replication studies (1979), and finally to a three-year follow-up study, completed in 1981 (reported in Clay, 1993). Now, the Ministry of Education undertake national monitoring annually (Kerslake, 1992). To answer the question, "How do these children compare with all their classmates?" Clay compared Reading Recovery children with a nonequivalent control group consisting of all the children who had not been selected for Reading Recovery. She found that children who were tutored in Reading Recovery and successfully discontinued made accelerated progress and scored, even several years after tutoring, within the average band. In addition to confirming Reading Recovery's positive impact on children, Clay's first research indicated that children whose programs could not be completed within the school year did not spontaneously shift into the average group. She recommended that time be provided the following school year for children to complete their programs and that is now New Zealand practice.

Clay replicated her original study in 48 schools and found similar results; it was also clear from this research that lower entry scores implied more individual tutoring time for students. Her research documented the successful delivery of the program at locations distant from the original university development area. It confirmed the success of Reading Recovery with varying populations and led to the adoption and maintenance of Reading Recovery as a national program. Monitoring of the program by the New Zealand

Ministry of Education indicates that with more than 20% of the age group receiving Reading Recovery, fewer than 1% of the age cohort is referred on for further services (see Clay, 1993; Kerslake, 1992). Two British school inspectors (Frater, & Staniland, 1994) visited New Zealand to make a careful evaluation before recommending Reading Recovery for adoption. They suggested that

> the low and generally stable figures for the proportions of pupils referred on for longer term help prompt further thought. Most prominently perhaps, they suggest that the scheme may have told us something fundamental about the remedial nature of much of the incidence of early reading difficulty encountered not only in New Zealand but in similarly long-established education systems in other advanced industrial societies (HMSO, 1993, p. 12).

Empirical Studies in the U.S.

Although the New Zealand research was impressive, it was necessary to test the program's potential for success in the United States. Two empirical studies were undertaken during the first years of the project in Ohio.

The purposes of the Ohio longitudinal study (Pinnell, 1989), initiated during the first full year of Reading Recovery in the U.S. were to explore: (1) whether the program could succeed with low-achieving children; and, (2) whether those children maintained their gains. That study used standard empirical design to demonstrate Reading Recovery's impact when compared to existing (and typical) programs. The results of the study were positive for Reading Recovery. Effect sizes were substantial in the first year's comparison but diminished by year four after the treatment period, a phenomenon that may be explained by dwindling sample size and increasing variability. Nevertheless, the study confirmed Reading Recovery's immediate and long-term positive effects.

Zutell and DeFord (1994) used the same sample of subjects (n=54) to take a focused look at abilities and strategies. They compared the remaining Reading Recovery students, 23 control students, and a randomly selected group (n=53) of fourth grade students on responses to the *Qualitative Inventory of Word Knowledge* (Schlagal, 1989). They found that while statistical

analyses indicated no significant differences among groups, clear trends did emerge from the data. Reading Recovery students, on average, performed noticeably closer to children in the general population than did students who had received the other form of instructional support. Over 20% of the control group performed at frustration level. Comparisons of percentages of misspellings indicated that a lower proportion of the control group students produced misspellings that followed "logical" patterns. They concluded that in spelling ability, the profile of the Reading Recovery group was similar to that of the random sample group while the control group data indicated a higher percentage of students performing at lower levels.

The second study (see Pinnell, Lyons, DeFord, Bryk, & Seltzer, 1993) was designed in response to challenges about the delivery system of Reading Recovery. This study was designed to address specific questions by comparing Reading Recovery with: (1) other one-on-one interventions; (2) traditional Reading Recovery teacher training with a condensed program that did not utilize key teacher training procedures; and, (3) group instruction based on Reading Recovery principles. The study again confirmed the program's successful instruction with effect sizes of 1.5 in the first year and .75 in the second year when groups were compared on text reading level. The analysis provided evidence that success was related to several interacting factors. One-on-one setting, a lesson framework with intensive experiences in reading and writing, and long-term teacher training were all necessary but not sufficient to explain Reading Recovery's success. The nature of training provided teachers emerged as a factor of critical importance. This research prompted more detailed examinations of the subtle differences in the instructional program provided by teachers.

Long-term Results

In addition to the empirical studies reported above and included elsewhere in this review, follow-up studies are conducted at many Reading Recovery sites. Three are presented here as examples. Researchers at Texas Woman's University (Fall, 1994) examined the literacy performance of previously discontinued Reading Recovery children two and three years beyond the first-grade intervention. They compared discontinued Reading Recovery children with a random sample of classroom peers. Random sample for Reading

Recovery comparisons are drawn from children not selected for the at risk intervention. Thus, these random samples represent a very tough comparison against which to measure the results of the program. The data included performance on a test of oral reading as well as information about the perceptions of classroom teachers of children's literacy skills. Former Reading Recovery children performed well above grade level placement on oral reading and compared well with their classroom peers. Classroom teachers perceived these former Reading Recovery children to be within average range in terms of literacy and classroom behaviors.

University of Arkansas Little Rock (1994) reports a comparison of formerly discontinued Reading Recovery children with a random samples of children. Second grade follow-up studies indicate that children continued to make gains with no need for remedial reading instruction and, on average, exceeded the achievement of a random sample of second grade children on measures of spelling, dictation, and oral reading. A third grade follow-up study of 53 formerly discontinued children indicated that their average exceeded the achievement of a random sample of third grade children on measures of spelling, dictation, and text reading ability. At the East Baton Rouge Parish Reading Recovery site, researchers (Elliott, in press) administered spelling, dictation, and oral reading measures individually to discontinued Reading Recovery students (N = 43) and a random sample of third grade students. They also administered the Louisiana Educational Assessment Program (LEAP). In third grade, former Reading Recovery students scored slightly higher than those of the random sample group on spelling dictation and oral reading. Results of an analysis of the language arts component of LEAP indicated that 85% of formerly discontinued Reading Recovery students achieved the performance standard. These students, by the selection criteria, had been in the lowest achieving group in first grade.

A recent New Zealand study focused on children for whom English is a second language (Smith, 1994). The study addressed the question of the suitability and long term benefit of the program for that population. From 1986 to 1991, ESOL (English for Speakers of Other Languages) and non-ESOL children were compared on entry and exit data and post program progress. A measure of average book level indicated that statistically significant progress was made ($p<.001$) by both groups in their Reading Recovery programs. At the

third year follow-up more than 50% of children in both categories (ESOL=21, 57%; non-ESOL=26, 70%) were reading material at a difficulty level 13+ months beyond their chronological age. The study confirmed previous longitudinal studies indicating immediate and long-term success for children who receive Reading Recovery programs; it also indicated that these findings are applicable to ESOL children in New Zealand.

A longitudinal study begun in 1988 was a joint initiative of the School Programs Division and the State Board of Education in Victoria, Australia (Rowe, 1988). This study was not designed to assess Reading Recovery but to compare, over a four-year period, the study compared the nature and impact of several teacher professional development literacy programs, including Reading Recovery, on students' literacy development. A central thesis of the research design was that it is not sufficient to report simple relationships between a given factor and a specific achievement outcome. The researchers attempted to develop explanatory models that would specify the directions and estimate the magnitudes of the variables that either directly or indirectly, with other variables,. influence achievement. The research involved repeated measures on students nested within classes and repeated measures on schools. This design allowed the researchers to evaluate the stability of school effects over time. Of the 100 schools invited to participate in the study, data were received on 5,092 students from 92 schools. With regard to reading achievement on tests of reading comprehension and reading profile bands constructed to compared students along several measures, the researchers found that, in general, students' achievement in programs taught by teachers who had participated in a literacy program did not differ significantly from those taught by teachers who had not participated in one of the professional development programs studied. There was greater variability in the range of achievement measures of students taught by literacy program trained teachers compared with those teachers who had not participated. An exception to this finding was for students who had participated in Reading Recovery (n = 147). The variation among these students was smaller, suggested that Reading Recovery appears to be meeting its intended purposes. It appeared that students who had been identified as "readers at risk" and place in a Reading Recovery program benefited notably from participants, with some achieving beyond the 80th percentile level of their non-RR-exposed

peers. Longitudinal data indicated that the earlier gains made by Reading Recovery students who were in Grades 5 and 6 during 1988 and 1989 appear to have been sustained. These findings are especially interesting given that these researchers were not looking for evidence of Reading Recovery's effectiveness.

Longitudinal research is difficult to conduct; Reading Recovery sites typically do not have extensive resources for collecting and analyzing data. In addition, there is a tension between time for testing and time for instruction. Nevertheless, teacher leaders and administrators in many sites follow children either formally or informally to determine the effects of the program. Over time, the pattern of results will form a better picture of the long-term effects of Reading Recovery.

Contextual Factors in the Implementation of Reading Recovery

It is not enough to design effective procedures for tutoring children. Any successful program must have a way of delivering the program. In the guidebook for teachers, Clay stated that "the plan of operation must allow for teachers to differ." (Clay, 1993, p. 62). At the same time, processes must be in place to assure quality service. Program implementers give particular attention to contextual factors that may influence the delivery system. For example, in the U.S., Reading Recovery is seen as a school and district commitment rather than that of a single teacher. An important contextual factor is the partnership that exists between classroom teachers and Reading Recovery teachers.

In a study of Reading Recovery in 12 schools situated in Auckland, Otago, and Southland, New Zealand during 1986 and 1987, special attention was given to context (Glynn & McNaughton, 1992). The sample represented a range of schools but was neither a random sample nor systematically represented possible schools. The subjects were 42 individual children who were entered in Reading Recovery and 41 children of similar age who did not experience Reading Recovery. Data were gathered over a 2 year period. In each school, when a Reading Recovery child (called "target") entered the program, a comparison child of approximately the same age was also selected. Neither the research team nor the schools wanted to prevent children who might need Reading Recovery from being selected; therefore, comparison children were chosen who were of similar age

and scored towards the lower end of the distribution but for whom a place in Reading Recovery was not available. Thus, comparisons were among initially unequal groups.

Glynn and his team found that while participating in Reading Recovery, target children made substantially more progress than comparison children, gaining over four levels more than those who began at the same reading levels. After release from Reading Recovery, the rate of gain decreased (at typical circumstance since children are no longer expected to make accelerated progress back in the classroom) and the control subjects were allowed to catch up. The explanation researchers gave for the slower progress after release from Reading Recovery was that students were generally placed in classrooms reading at book levels lower than what they could read; therefore "it appears that in effect many target children made little progress until their reading groups caught up with the level they had attained some months earlier at discontinuation" (p. 124). They hypothesized that the procedure was to allow children to consolidate skills, but that children might not be challenged enough by this practice. They also noted extreme variations in the attitudes of classroom teachers towards target children. The researchers found greatest benefit for the children entering Reading Recovery with lowest text reading levels. In interpreting the study, cautions must be observed in comparing two unequal groups. Membership of the sample groups varied markedly from one testing time to another. This factor is compounded because the sample was small and not randomly selected.

Glynn recommended a conservative cut-off point, considering text reading only, for entry into Reading Recovery with the idea that fixed criteria would prevent children receiving tutoring when they do not need it. There are two arguments against this recommendation. In beginning reading it is critical to use multiple measures. Children are acquiring knowledge along several dimensions that have not yet been integrated; therefore, using one task will not give us a true picture of who the children in difficulty are. Literacy involves a complex interrelationship of abilities; to measure only one aspect of reading may provide a false picture.

An Australian study assessed the progress of 31 children receiving Reading Recovery in the first year of implementation in New South Wales. They were compared to a matched comparison group from five matched schools and a control group consisting of

low-progress students who had entered Reading Recovery by the time of the testing. The researchers found superior performance for Reading Recovery at short term evaluation (15 weeks) but no significant differences at 30 weeks; however, by that time, the Reading Recovery group had shrunk from 31 to 22 children and the control group had shrunk from 39 to 15, largely because less able students in the control group had been admitted to Reading Recovery. These researchers' analysis of the matched sample suggested that some students may have been served in Reading Recovery who would have made adequate progress without the program. This assertion, however, is based on their own definition of "discontinued," as indicated by the results of test scores related to chronological age rather than the rigorous procedure required by the Reading Recovery program. It is not clear whether the matched students would have met those criteria.

Any prevention program inherently runs the risk of serving some children who might succeed without it; but at the entry point, we cannot be sure about any individual. First, writing skill is as important for literacy learning as reading skill. Second, any prevention program inherently runs the risk of serving some children who might succeed without it; but at the entry point we cannot predict in any satisfactory way which individuals will make good progress. Provision of the program to approximately 20% of the first graders will be the best compromise between risk and cost. In low economic areas with high need, children's programs may be longer; therefore, more resources will be needed and coverage may need to be extended into second grade.

What we can derive from Glynn's study is a recognition of classroom factors as important in the continued progress of Reading Recovery children. A U.S. study by White (1992) indicated the complexity and impact of the school context and confirmed the importance of partnership between the Reading Recovery and classroom teachers in helping children transfer their skills from individual lessons to classroom work. White (1992) found that even so seemingly insignificant a factor as proximity of the classroom and the instructional space for Reading Recovery can have facilitative or negative effects. The study revealed contextual factors that can affect the delivery of the program as well as the different perspectives and decision-making styles of local educators. In another New Zealand study, Smith (1984, 1988) also found that

factors involving subsequent instruction were the single strongest influence on children's post Reading Recovery progress.

Schnug (1991) studied Reading Recovery from the point of view of the student. In a two and one-half month case study of two male students, Schnug examined the patterns of instructional activities that occurred over time in Reading Recovery lessons and in the classroom setting. A unique aspect of his study is his description of students' self-reports. Schnug was interested in students' perceptions of their performance and abilities as they learned to read. The researcher found that both students were highly influenced by the context. While opportunities were available in both settings, Reading Recovery provided more routines that required a sustained and open-ended reading or writing response. Routines in classroom reading generally produced more close-ended responses as imposed by instructional materials such as worksheets. One subject's more active participation appeared to work to his advantage; the more hesitant child was allowed to turn down invitations to participate in the classroom. Schnug's study reveals how an active teacher in Reading Recovery can create opportunities for children who might be reluctant to participate in classroom settings. Both students became more active in the classroom over time, and both saw themselves as good readers.

Askew and Frasier (1994) have suggested that teachers' perceptions of children's abilities figure heavily in their continued progress and opportunities to learn beyond the first grade year. Their study of the program's sustained effects on the cognitive behaviors of second grade children suggested that former Reading Recovery children, when compared to a randomly selected average group that did not receive the intervention, were more overtly signaling their problem-solving strategies while reading text. This factor did not appear to affect reading ability in general, and may have been an artifact of the researchers' observational skills and sensitivity to subtle aspects of behavior. Former Reading Recovery children also compared well with their peers in oral retelling tasks designed to measure comprehension of text. The researchers noted problems with retelling as a measure since both groups, random sample and former Reading Recovery students, appeared to see the task as socially inappropriate without a logical audience. Additionally, Askew and Frasier found that former Reading Recovery children compared well with their second grade peers on fluency

indicators. They noted, however, that in many instances for both groups, teachers' perceptions did not match actual student performance, suggesting that either teachers were making their judgments on a broad range of classroom behaviors rather than on specific reading behaviors or that they were using a comparative scale, ranking some students as "low" even if most were well within average range.

Reading Recovery has been implemented with remarkable fidelity in all five countries of implementation; yet, different problems and dilemmas continue to arise. For example, in New Zealand children enter school on their fifth birthday and encounter a print-rich environment in classrooms. By their sixth birthday they have had a year of literacy experience. In the U.S. and Canada, children enter kindergarten anywhere between age 4 and 7, and kindergartens vary widely. This circumstance prompts continuous problem-solving. The *Guidelines and Standards for the North American Reading Recovery Council* (The Ohio State University, 1994) specify essential standards for assuring the quality of service to children in Reading Recovery; however, the document also acknowledges that "no set of guidelines will ever address the range of issues that will arise" (p. iii). The guidelines are intended to be used as a guide by educators who have been trained in the rationales behind their use rather than as a blind set of rules.

Success in Diverse Settings

Reading Recovery has been shown to be successful in a wide range of urban, rural, and suburban school settings. Hiebert (1994), in a critique of the program, has suggested that Reading Recovery is effective in suburban districts, but questions whether it is worthwhile to provide it for poor children in urban districts where it is harder to achieve full coverage for children who need extra help. Children who enter the program with less knowledge will have longer programs in Reading Recovery, but they do succeed. Areas of high need usually require more problem-solving and greater efforts on the part of administrators. More time is required to move the greater distance to full implementation (serving approximately 20%) in such districts. But, success has been demonstrated, establishing a reason for making this extra effort.

In a study of children who were served by Reading Recovery in the New York area in 1990-91, Jaggar and Smith-Burke (1994),

compared Reading Recovery children with a group of children drawn from the "waiting list." These children had scored low but were not the lowest scorers in their schools. The schools in the study, however, for economic and other reasons, had high numbers of children who qualified for Reading Recovery and low resources to provide the program. Thus, the "waiting list" children were considered by teachers in the school to need extra help. Of Reading Recovery children who received at least 60 lessons and/or were discontinued (n=328), 78% were successful in the program, meaning that they achieved at least grade level status (defined by average band) for their class or school and showed evidence of a self-extending system for reading (see discontinuing criteria in Clay, 1993). Of the comparison group, 71% were reading below grade level even though many received some type of supplementary instruction. Higher coverage in Reading Recovery could have benefited the "waiting list" children.

District #2, New York City, an area of economic disadvantage that has a highly diverse population, reports a steady increase in the percentage of children successfully discontinued from the program (from 57% in 1990 to 95% in 1994). This progress can be attributed to increased coverage and analysis of the system over time. A June, 1994, follow-up study of 198 second graders showed that at the end of second grade, 86% of the Reading Recovery children who successfully discontinued from the program in first grade scored within or above the grade level average band on text reading (20.33-30.27; Grades 2^2 - 6) compared to 75% of a random sample of children not selected for Reading Recovery. As a group the Reading Recovery children had a mean text reading score of 27.06 (equivalent to Grade 4) while the random sample mean score was 25.3 (equivalent to grade 3). A small number (n = 27) of formerly discontinued third graders were followed. At the end of third grade, 82% of the Reading Recovery children, compared to 87% of the random sample children scored within or above the average band (29.88 - 34.34; Grades 5 - 8). As a group, these Reading Recovery third graders had a mean text reading score of 31.56 (Grade 6) which is similar to the random sample (32.11; Grade 7). There appear to be variations from year to year, however these results indicate a remarkable achievement for these initially struggling children. The District #2 project demonstrates what can be achieved with continuous effort in an urban setting.

In Boston and surrounding areas, Leslie College reported that 93.3% of second graders who were Reading Recovery children in first grade were reading materials identified by classroom teachers as on grade level or above. Of second graders who participated in Reading Recovery (N = 146), 94.9% read materials at or above grade level, with 92.3% reading at above average grade level (Fountas, 1994). As the British inspectors stated, "The essential conditions for the success of Reading Recovery, as a system, lie in the coherence, the resourcing, and the reach of the support and quality assurance structures which are put in place for its implementation" (HMSO Report, p. 23).

In a unique descriptive study of Reading Recovery children's home experiences, Holland (1991) discovered that the achievements children made in school tutoring carried over to the home environment. Through interviews and observation, Holland studied the family literacy experiences of thirteen children for a period of one year. Families were, in general, in economically depressed circumstances. She found that parents, siblings, and other caregivers supported and appreciated children's efforts in a variety of ways, for example, by listening to them read and talking with them. These families tended to depend on the school for writing materials; early in children's programs, the cut up sentence was highly valued, but, increasingly, both parents and children depended on the little books that came home every day. Holland reports that "during the year, more than seven hundred Reading Recovery books were taken home by these thirteen first-grade children, but only one child lost a book." (p. 157).

Children tended to initiate reading sessions at home; usually they captured more than one family member. Holland described the book as a "literacy tool that drew the whole family together to support the young reader's need to share reading... when no one was available, children read the books to themselves or to dolls, stuffed animals, and family pets" (p. 157). The study demonstrated that parents, formerly concerned about their children's progress, were able to observe their children successfully reading and writing. By the third interview most parents believed that their children were good readers. Holland's research indicates the power of sending into homes literacy materials that children can control themselves.

English researchers (Moore & Wade, 1994) interviewed a group of parents (N=47) from diverse socioeconomic and ethnic

backgrounds. They report that parents had been invited to observe reading sessions and that this experience influenced the kind of help they gave their children at home; for example, they were more aware of the importance of praise. These parents were impressed with their children's enthusiasm for the stories they encountered in Reading Recovery and stated that progress had extended into other areas of the school curriculum and that their children read more on their own time. Twelve of the 47 children whose parents were interviewed were second-language learners; and these parents were as positive about the program as were the single-language parents.

Dorn (1994), with a colleague, Allen, reports the simultaneous implementation of Reading Recovery with a specially designed small group model in the state of Arkansas. The small group program was similar to that described by Pinnell & McCarrier (1994), although adapted at the local level. Extensive staff development was provided for Reading Recovery teachers; they taught small groups of low achieving children during half of the day, devoting the rest of their time to tutoring four Reading Recovery students daily in individual lessons. Each small group lesson was approximately 45 minutes in length.

The program was based on an organizational structure suggested by The Ohio State Reading Recovery program for areas that serve large numbers of at risk children. Based on a combination of teacher ranking (by kindergarten teachers and first grade teachers in collaboration), classroom observation, standardized test, and observation survey (Clay, 1993a), the lowest ranking children were selected. Of those students the lowest achieving were selected to receive Reading Recovery and the remaining children were placed in a small group program, five students per group. When a child exited the Reading Recovery program (through moving or discontinuing), the lowest achieving student in the group was placed in Reading Recovery. It is important to note that prior small group membership was not a criteria for selection if, at the point of vacancy, another child was more in need. A priority was placed on reserving the individual tutoring for the children who needed it most.

Intervention services for a total of 231 children were analyzed Of this number, 95 (41%) received Reading Recovery tutoring only; 93 (40%) received group services only; and 43(19%) received a combination of group service and Reading Recovery, although not simultaneously. Of the 95 children who received Reading Recovery

services with no prior experiences in a group program, 72 (76%) were discontinued with an average of 65 lessons. Of the 93 children who received only small group instruction, 28 (30%) reached successful levels of reading achievement at an average of 48.5 lessons. Of the 43 children who were served by the group prior to entering Reading Recovery, 24 (55%) were successfully discontinued from Reading Recovery in an average of 25 lessons. This group had received an average of 40 group lessons prior to entry. A higher percentage of children probably would have reached average reading levels with more time in the school year. The 11 teachers involved in this study each served an average of 21 low achieving children in some type of intervention during the first grade year and an average of 11.3 children per teacher reached average reading levels for their schools.

Dorn raised several cautions in interpreting these data. First, she recognized that the confusions of the lowest achieving children are diverse and that multiple assessment must be used in assigning children to the appropriate level of intervention. Second, she affirmed Reading Recovery as the most effective program for the lowest children who must have individually tailored lessons. The group provided support but could not reach the high discontinuing rates yielded by Reading Recovery. It was, however, an added benefit that 30% reached average levels without requiring Reading Recovery. Third, 19 (6% of the at risk population) children were served first in the group and then entered into Reading Recovery but were not discontinued. These children, however, made notable gains in all areas when compared with a state random sample of first grade students. Dorn concluded that this model has efficacy for serving larger numbers of children during the first grade year.

***Descubriendo la Lectura*: Reading Recovery in Spanish**

One of the most interesting and exciting new developments in Reading Recovery is the reconstruction of the program in Spanish (Escamilla, 1994). In consultation and with the permission of Clay, teachers and administrators in Tucson, Arizona, made the commitment to develop and study the application of Reading Recovery in Spanish. This reconstruction of the program is designed to serve native speakers of Spanish who are having difficulty learning to read in their first language. From a theoretical standpoint, this study is significant for several reasons. First, it

utilizes the knowledge base and theoretical framework from two important fields (bilingual education and Reading Recovery) for the purpose of addressing a large and growing need in our country. This need is how to assist Spanish-speaking children who are having difficulty learning to read without prematurely submerging them in English and without permanently placing them in classes for slow learners (Escamilla, 1994, p. 59). Second, the study provides a model for constructing Reading Recovery programs in other languages. Third, it demonstrates learning and teaching processes across languages.

Descubriendo la Lectura (DLL), as the reconstructed program was called, is equivalent in all major aspects to the program designed by Clay. Escamilla (1994) studied 180 first grade, Spanish language dominant students from six elementary schools. She compared three groups: (1) the lowest achieving children, identified by teacher ranking and the six observational measures (Clay, 1993a), who were entered in DLL ($n = 23$); (2) control group students ($n = 23$) who were selected on the same basis and could have benefited from DLL but were from two schools that had no DLL program; and (3) a comparison group ($n = 134$) composed of all first grade students who were from the six schools in the study and were not identified as needing DLL (that is, not in the lower 20% of the class).

Subjects were tested at the beginning of 1991 and again at the end of the year. In addition to Clay's measures, Escamilla used the *Aprenda* Spanish Achievement Test (1991). Although several tests favored the control group in the fall, Escamilla found the DLL group and control group to be similar at year end. There were statistically significant differences between those two groups and the comparison group ($p < .01$) in the fall. Spring measures indicated that the DLL group significantly outperformed the control group ($p < .05$) on all measures. Mean scores of the comparison group (Fall and Spring) provided a picture of what average progress meant in first grade. By the spring testing, DLL students had reached average levels for the class on all measurement tasks. This was not true of the control group, which remained far behind the comparison group. "In fact, on all measurement criteria used in the study, DLL students not only caught up with their average peers, but surpassed them at statistically significant levels" (p. 86). Escamilla concluded that "the data reported establish that the DLL program achieved acceleration with Spanish-speaking students who were struggling while learning

to read in Spanish" (p. 86). This research provides evidence of the promise of *Descubriendo la Lectura*; however, as Escamilla notes, the numbers of children were small. It is also the case that DLL is still under careful development and scrutiny by its implementers. More research is needed to determine effectiveness, to provide information about the ways teachers and children work together, and to uncover the necessary variations that are related to the differences between English and Spanish. DLL continues to be an integral part of the North American Reading Recovery effort.

Calculating Long-term and Cost Benefits

Any analysis of long-term research must acknowledge that intervening variables make it difficult to accurately determine the value of an approach. Over a period of years, systemic factors such as subsequent instruction, promotion and disciplinary policies, special education, and individual life circumstances, despite a successful early intervention, act as intervening variables affecting a student's progress. Studies in New Zealand and the U.S. indicated long-term benefit from early tutoring in Reading Recovery, and Australian researchers discovered such an effect as a serendipitous outcome (Rowe, 1988).

Preventative efforts make sense but are difficult to measure. For example, it is hard to convince the public of the value of preventative health care because when we look at healthy individuals we cannot know with certainty that they would have required expensive services without the intervention. We cannot calculate the true cash value of Reading Recovery by figuring the cost per test point gained or even by reducing numbers in remediation. In some areas of high need, so many children qualify for Chapter 1 remedial help that without full coverage and an orchestrated range of interventions, including enhanced opportunities and dynamic teaching in classrooms, the effect will not immediately be noticeable.

One benefit may be reduction of the need for some kinds of special education services. One district in Massachusetts (Moriarty, 1995) reports reduction in retention and a drop from approximately 18% to 3% in referrals to special education in the primary grades. Much has been written about the misclassification of children as handicapped (see Allington & McGill-Franzen, 1990). Classification, according to researchers like Allington & McGill-Franzen, may result in a "blame-the-victim" mentality that ultimately deprives the

student of the instruction needed to achieve. It is time, they say, to stop "focusing on the unnecessary labeling of children as a pre-requisite to their receiving instructional support." Clay (1990) advocates using Reading Recovery as a period of diagnostic teaching before labeling children in any way as requiring longer-term individual help. She writes,

> If we accepted an open definition of learning difficulties, we would diminish the need to debate what constitutes learning disabilities. This would encourage researchers, educators, and policy makers to provide early intervention for all low-achieving children, based on specialized teaching responsive to individual behaviors. (Clay, 1990, p. 16).

Intervention prior to labeling is taken seriously in Canada. A recent Royal Commission report from Canada (1995) recommends:

> . . . that no child who shows difficulty or who lags behind peers in learning to read be labeled "learning disabled" unless and until he or she has received intensive individual assistance in learning to read which has not resulted in improved academic performance (Recommendation 33, "For the Love of Learning", p. 69).

Reading Recovery, which is designed to adjust to the individual, is an example of an early intervention approach that has potential for reducing the numbers of children ultimately diagnosed as learning disabled. At this time, "learning disabled" can refer to a variety of problems, and behaviorial characteristics may be dependent on the diagnostic measures used to identify children. In a study comparing children classified as learning disabled with Reading Recovery children not so identified, Lyons (1989), found that at the beginning of their programs, classified children had a greater tendency to rely on visual information, neglecting meaning and language cues. By the end of their programs, the two groups became more alike, using a balanced set of strategies to read. Both groups were highly successful. Differences in children's behavior patterns provided evidence that Reading Recovery was an effective approach whether or not children had been previously classified as learning

disabled. Different studies might find other kinds of imbalance but individually constructed programs can help children use their strengths in different ways to become flexible, fluent readers.

The Ohio State University (Pinnell, Lyons, & Jones, 1995) reports that of 40,493 Reading Recovery program children (selected as the lowest achieving children) in 1993-1994, 457 (1.1%) were later referred for LD screening. Of 5,466 program children in Ohio that same year, only .9% were referred for LD screening. There is no way to know how many would have been referred without Reading Recovery; but experts suggest much higher proportions. At this time, the U.S. Department of Education (1990) reports that the LD population has doubled. Coopers & Lybrand (1994) recently found that in New York City the cost is $23,598 for full time special education students. Providing extra services to students who remain in classrooms creates an add-on cost of $5,059 per student in addition to the base of $5,149 each year. As a "first net," Reading Recovery has the potential to reduce special education referrals, retention, and the need for remedial services with consequent savings (see Lyons & Beaver, 1994).

Research on Teaching and Learning

The statewide experimental study referred to above (Pinnell, et al., 1993) showed superior results for one to one instruction using Reading Recovery procedures by trained teachers. Researchers were interested to note that the alternatively trained teachers (two initial weeks and some follow-up) provided lessons that on the surface were almost identical to Reading Recovery lessons in that approximately the same amount of time was spent on each element of the framework. Materials were the same for Reading Recovery and the alternative program. Clearly there was a need to look beyond the surface elements uncovered by the statewide study.

The Nature of Teaching in Reading Recovery

Reading Recovery is an individual program in that the teacher works from the child's responses and knowledge base. The theory on which Reading Recovery is based (see Clay, 1991a) suggests that support for individuals' learning is provided in moment to moment teacher-child interactions. The power of the program lies in the

teacher's ability, in the context of continuous text, to direct the child's attention to "the clearest, easiest, most memorable examples with which to establish a new response, skill, principle or procedure." (Clay, 1993b, p. 8). This powerful teaching occurs throughout the thirty-minute lesson which is structured around six general components that must be present every day: (1) reading many known stories; (2) independently reading a story that was read once the previous day while the teacher observes and assesses progress; (3) writing a message or story, with support by the teacher for the construction of words; (4) working with letters and "making and breaking" words to learn how they work (using magnetic letters); (5) putting together a cut-up sentence (from the story above); and, (6) reading a new book introduced by the teacher.

In the Reading Recovery lesson, children have the opportunity to connect reading and writing and to engage in problem-solving while reading. Children work out problems by searching for and using information from a variety of sources such as experience, knowledge of language, and visual information from print. Although challenge is inherent in the activity, the Reading Recovery teacher is also concerned with ease and fluency. Text selection and instructional support make it possible for children to see themselves as doing what good readers do (DeFord, 1991). DeFord suggests that Reading Recovery children's rereading of texts helps them to orchestrate strategies more effectively and focus on meaning while becoming more fluent.

The Reading Recovery lesson has been described as "a highly organised, intensive, and, it must be stressed, enjoyable occasion. Moreover, it is not confined to reading alone -- writing and a good deal of speaking and listening also features strongly" (HMSO Report, 1993, p. 5). The activities of the lesson put the child in control of his/her learning. The teacher's goal is to help children to become independent, strategic users of literacy. Only by engaging in the use of strategies, with the support of a more expert other, will the child be able to take over the learning. Although not developed using Vygotsky's theory, Reading Recovery has been interpreted as an example of an apprenticeship model, in which the child works alongside a more expert writer and reader who demonstrates and supports the novice's efforts. The teacher identifies the child's areas of strength and existing knowledge and assists in the use and extension of that knowledge (Clay & Cazden, 1990; Gaffney &

Anderson, 1991). "Acceleration is achieved as the child takes over the learning process and works independently, discovering new things for himself inside and outside the lessons. He comes to push the boundaries of his own knowledge, and not only during his lessons" (Clay, 1993b, p. 9).

Materials

Books are considered the key material for Reading Recovery. Little existing research focuses on the texts themselves. Peterson's (1991) analysis of the texts used in the program indicated that the twenty levels of difficulty into which the books are organized serve several purposes for teachers, including tracking progress of children and book selection for individual children. The levels, however, serve only as a rough guide for selection; there is no prescribed sequence. Peterson found that in selecting the easiest books for children at the beginning of their programs, teachers look at both text characteristics (the layout of text, predictability, prior knowledge required to understand concepts, etc.) and student characteristics. She also cautions teachers that books in Reading Recovery are selected for individual children's needs in learning to read; literacy programs require a much broader range of difficulty and type of text.

Studies of Teacher Behavior and Student Outcomes

Studies of Reading Recovery have documented teacher-child interactions that appear to be related to successful student outcomes. These studies involved the detailed analysis and categorization of the types of interactions that were observed in taped lessons. Several studies of instruction (DeFord, Tancock & White, 1990; Lyons & White, 1990) provided a pattern of evidence suggesting that successful teachers help children become flexible problem solvers who focus on meaning. Teachers' comments during lessons supported children's use of the full range of information needed for reading (for example, meaning, picture clues, syntax, and visual detail). Lower student outcomes were associated with an overemphasis on one source of such information. Analysis of teachers' statements in videotaped Reading Recovery lessons at two different points in time indicated that higher student progress was associated with consistent balance between attention to text-level strategies and letter-, or word-level strategies. Successful teachers

appeared to be helping students analyze words using larger chunks of information and they were more specific and more responsive to specific child behaviors that indicated problem solving (Pinnell, 1993). These studies were conducted on quite small samples of teachers. Further investigations are needed involving larger numbers of Reading Recovery teachers.

Frasier (1991) observed two Reading Recovery students with differing profiles of progress for a period of six months. Based on behavioral evidence, Frasier compared the use of strategies by the two readers and also examined the teacher's prompting for strategy use. One child made accelerated progress in Reading Recovery and the other was not successful. This research indicated that while both readers made progress in learning and evidenced the development of strategies, the two readers differed in several ways: for example, oral language behaviors, print awareness behaviors, linking behaviors and risk-taking behaviors as well as the way they interacted with the teacher. The high progress student had more initial control of oral language and more readily noticed and used visual information in print. The slow progress child required more prompting from the teacher to take on every new behavior. Consistent with Glynn's recommendations (Glynn, et. al.,1989), Frasier concluded that the slow progress child required more time in the program. These results, however, should not be generalized to indicate that children who come into the program with low scores will make slow progress; many children who initially have a low knowledge base make accelerated progress. Clay and Tuck (1991) have looked closely at children who do not make accelerated progress in Reading Recovery; they found great variation among this group. More research is needed in this area.

As an alternative to defining success in terms of student outcome measures, Handerhan (1990) conducted a qualitative investigation using multiple ways of viewing success. She contended that success can also be defined through perceptions of students and teachers and through observed actions. In her study of successful teachers, using this multifaceted definition, Handerhan (1990) found that while the four teachers she studied structured their lessons in similar ways, there were variations across teachers in use of time, choices of materials and instructional actions. Interactions between the student-teacher pair who consistently fell at the higher end of the success continuum were varied and represented a wide

repertoire of strategies. Children were invited to "play" with language in many different ways and for different purposes. Handerhan described a narrower range of interactions for the dyad at the lower end of the continuum.

Iversen and Tunmer (1993) report results of a quasi-experimental study in which two nonstandard versions of Reading Recovery were compared. Three matched groups of Reading Recovery children were compared: (1) one group received a Reading Recovery program designed by the researchers to include explicit code instruction involving phonograms; (2) the second group received "traditional" Reading Recovery instruction that did not include recent refinements; and, (3) the third group received a "standard intervention," defined as either Chapter 1 or a state-supported program called Literacy. Both Reading Recovery groups were superior in performance to the third group and achieved equal levels of reading performance; however, the group receiving the modified program made quicker progress, resulting in shorter programs. While the researchers concluded that the more rapid progress in the program was strongly related to the development of phonological skills, two things must be noted. First, what was described as the "traditional group" (group 2) was equal to or better than the special program group on the phonological test assessments at the end of the Reading Recovery program; and second, the special program group (group 1) had a full Reading Recovery program within which to learn their phonological skills, so factors other than phonograms may have been involved.

Several factors make it important to exercise caution in interpreting the Iverson and Tanmer study. The Reading Recovery groups were selected for convenience (two teacher classes) rather than using random assignment or other techniques for matching; therefore, we cannot assume that they were equivalent. One of the researchers, a New Zealand tutor, conducted both Reading Recovery classes, making experimenter bias a possibility. Since the same teacher educator had not participated in Reading Recovery for several years, the experiment was conducted without access to refinements in the program that had taken place in the preceding three to four years. So, Reading Recovery in this experiment did not have the benefit of the in-depth work on words, called "making and breaking," which now features more prominently in Reading Recovery lessons. Revisions in the program are related to recent

research on phonological awareness, onset and rime, and analogy (see Clay, 1993b, p. 44). The major focus of the program, however, is still on meaning and on reading and writing extended text. In any study of variations on a program, it is dangerous to assume that the variant produces the good outcomes. It may be that the full program is sustaining children's progress despite the variations in procedure. Nevertheless, the work of these researchers confirms the power of the lesson framework and raises important issues related to the role of phonological awareness in reading progress.

DeFord (1994) examined differences among high and low progress students. In a comparative descriptive study she selected students (n=12) and teachers (n=8) half of whom represented higher and lower outcomes in the program. Her analysis of videotapes of lessons, student writing books, pre- and post-test measures, and lesson records indicated marked patterns of interactions across the beginning, middle, and end of program designations. This analysis focused on the writing section of the Reading Recovery lesson. In this section of the lesson, teachers and children collaborate to write a message on one page of a writing book while using a "practice" page for word construction and other kinds of practice and analysis. Teachers watch for appropriate opportunities to use scaffolding tools such as "hearing sounds in words," in which the teacher draws squares for each phoneme (and for each letter, as the child becomes more advanced) and invites the child to say the word slowly to identify sounds and construct the word. Teachers also find opportunities to help children construct unfamiliar words from words they know and to see patterns and relationships in word clusters. The whole process, with the goal of producing a message composed by the child, offers chances for children to examine the links between oral language and written symbols.

DeFord's study suggested that higher outcomes were related to teachers supporting efforts at independent problem solving and making decisions about how to use tools such as hearing and recording sounds in words and analogies across the child's program. Copying had little value. Independent phonological analysis (using hearing sounds in words techniques), generating new words from known examples, and fluent word writing facilitated rapid progress. This analysis confirms the importance of writing in the lesson framework. DeFord concluded that writing is especially helpful early in the child's program. By taking advantage of and fostering the

reciprocity between reading and writing, teachers helped children to build networks of understanding "until the systems of knowledge held in reading and writing converge" (DeFord, p. 53). These networks, she hypothesized, would be powerful sources of personal knowledge for children's continued learning in classrooms.

Studies of Teacher-Student Interactions

Studies of teaching, while helpful to program developers in refining teacher training, fall short of explaining the dynamic and interacting processes that lead to student learning in Reading Recovery. With the consistent lesson framework and emphasis on conversation as a support for learning (Kelly, Klein, & Pinnell, 1994), Reading Recovery has been viewed by some researchers as an ideal setting for examining teacher-child interactions and their relationship to learning.

A number of studies have used Reading Recovery as the setting to study interactions between children and teachers. Askew (1993) analyzed taped interactions between children and their teachers across four readings of the same text. This study of repeated readings revealed that children's behaviors indicating monitoring, error detection, and self-correction increased as texts became more familiar. These familiar texts do not represent "memorized" renditions but strong linguistic resources which the reader can access when cued by print. Fluent reading also increased and teacher intervention decreased. Askew's analyses support the inclusion of multiple readings of the same text because they provide a chance to engage in fluent reading and independent problem solving.

Using a sociocultural framework, a group of researchers (Wong, Groth, & O'Flahavan, 1994), analyzed five Reading Recovery teachers' interactions with children in two contexts, familiar reading of known stories and reading new stories. They characterized teacher-student interactions using five categories for teacher behavior:

(1) telling -- to provide the word or an explanation;
(2) modeling -- to explicitly demonstrate an act;
(3) prompting -- to focus attention on visual, structural, or meaning cues available in the text;
(4) coaching -- to take the reader outside the reading act to focus on how the student performs or responds; and,

(5) discussing -- to talk about the text in a way that focuses attention on the meaning of the story.

The researchers found that teachers were less directive when students reread familiar texts and tended to behave as "coaches" to support students' attempts. In new texts, however, there was an increase in teacher behaviors such as modeling, prompting, and discussing comments that fostered efficient processing of continuous texts. The researchers stated that "teachers trained in Reading Recovery seem to know from moment to moment what text to focus on, when and how to prompt, when to tell, when to coach, and when to allow readers to direct their own reading" (p. 23). These comments capture the goal of Reading Recovery teaching, toward which both initial training and continuing teacher development are directed.

Case studies of teachers have further illuminated the decision-making process. Elliott (1994) employed a qualitative case study approach to examine decision making by one effective Reading Recovery teacher. Her study revealed that the teacher's knowledge was built upon multiple sources of information -- knowledge of the child, pedagogical content knowledge, and knowledge of content. Pedagogical content referred to the teacher's understanding of her role in assisting children to read and write. Knowledge of content referred to understandings specific to the ideas, facts and concepts associated with emergent literacy; that is, the teacher's personal theory. These knowledge sources were intricately linked to the kind of reasoning the teacher used to make decisions for individual children. Elliott (1994) described what she observed as "responsive teaching," a process of observing and interpreting information about one child's reading/writing behaviors forming a transaction with the teacher's knowledge base and the process of making decisions. That is, the process is not one of applying a particular teaching move to a particular response but of constantly synthesizing and analyzing relative to the individual.

Dorn (1994) examined the types of conversations that occurred between the teacher and child during the period of a child's program called "Roaming around the Known." Teachers are directed by the Reading Recovery guidebook as follows:

> For the first two weeks of the tutoring programme stay with what the child already knows. Do not introduce any new items of learning...
>
> Go over what he knows in different ways until your ingenuity runs out, and until he is moving fluently around this personal corpus of responses, the letters, words and messages that he knows how to read and write... the most important reason for roaming around the known is that it requires the teacher to stop teaching from her preconceived ideas. This will be her focus throughout the programme (Clay, 1993b, p. 12, 13).

Dorn suggests that this context is comparable to the mother-child dyad. She conducted case studies of one teacher and two African American male students in a small rural school; all "roaming" sessions were audio taped and video recorded; sessions were observed and written productions were collected.

To analyze the data, Dorn identified a series of nested contexts: literacy events, literacy episodes, literacy conversations and literacy statements. She found that three types of talk worked together to support the child's development of inner control: (1) child talk; (2) teacher feedback talk, in which the teacher responded to the child's demonstrations of literacy use; and (3) teacher feed-forward talk, in which the teacher tried to activate the child's pre-existing knowledge for use in a new situation. Her analysis of the language in sessions suggested that both kinds of teacher talk facilitated children's literacy growth. Teachers took the opportunity to talk aloud, describing the child's accomplishments with regard to reading and writing. Children also began to articulate specific knowledge about literacy, providing the teacher with further overt evidence of understanding; however, Dorn concluded that the teacher's responses to the child's demonstrations of literacy were of greater importance than the child's ability to articulate. The teacher skillfully used language in a mediating way to help the child access prior knowledge. As children gained experience, they tended to exercise greater control in the reading activity and the teacher's role of assistance varied in response to the behaviors signaling children's knowledge; for example, Dorn observed transitions from teacher-regulation to child-regulation in literacy events. Dorn's study

confirms the central role of observation in Reading Recovery teaching.

After entry to the program, some children find it hard to make accelerated progress a circumstance that provides additional challenges for Reading Recovery teachers. If a child is making slow progress, teachers must assume that they have not adequately adapted the program to meet the student's needs. A reexamination of teaching is required (Clay, 1993b). To meet these idiosyncratic needs, teachers must reexamine their teaching behavior and their analyses of the child's difficulties. The goal is to gain new or additional insights into what may be interfering with progress. Lyons (1994) case study of an effective Reading Recovery teacher working with a hard-to-teach child who was successfully discontinued. The study revealed that this excellent teacher could: (1) describe specific behaviors that suggested where, when, and under what conditions the student's processing was breaking down; (2) use the student's behaviors to infer the cognitive and perceptual processing going on "inside the head" to build a theoretical rationale for *why* the breakdown might be occurring; and, then (3) determine a course of action and specific teaching procedures to help the student learn how to help him/herself acquire and use effective reading and writing strategies.

The Reading Recovery lesson provides an intimate setting within which teacher and child are collaboratively immersed in reading and writing. Wong, Groth, & O'Flahavan's (1994) analysis revealed that teachers' scaffolding comments occurred not in isolation but "dynamically as the teachers attempted to find the appropriate support for the student at the right time" (p. 21). It is the spontaneous nature of the interaction that is so difficult for research to capture and press into a formula that may be directly taught to teachers and transferred to other situations or programs. As they interact, the teacher structures behaviors to meet the student where he or she is in learning. In times past, this kind of powerful teaching might have been described as an "art" or something that a "born teacher" might do. We know from Reading Recovery that teachers can learn to interact with students to promote learning and this skill can be refined and extended over time, given a high quality professional development program.

Research on Teacher Learning

Reading Recovery training has been described (Alverman, 1990; DeFord, 1993; Pinnell, 1994) as an inquiry-oriented model for teacher education, an appropriate description because all components of the staff development model involve teachers in searching and reflection. Each young student represents an individual investigation through which teachers learn as they "follow" the child's progress and make hypotheses about the nature of his or her learning. The teacher uses opportunities that arise from several sources: (1) the texts children encounter; (2) their responses to those texts; (3) the conversations in which they engage; and, (4) the messages composed and written.

From those sources, teachers learn to craft teachable moments; their learning is supported by the leader's guidance and their talk with others. According to Clay and Watson (1988), "the key word in the development and implementation of this inservice program was... observation and the unique feature was the potential for multilevel observation and learning that was embedded in the situation" (p. 192). Two components -- talking while observing and reflective discussion -- make up the major part of the teacher education program. Each case example or demonstration presented gives every teacher a chance to reflect on his or her own teaching. This reflective/analytic experience helps teachers to construct and refine their theoretical explanations and to go beyond procedures. Through shared experiences, a culture is created that supports teachers' learning.

Impact of Reading Recovery on Teachers

Every study of teachers involved in Reading Recovery has revealed a powerful impact on individuals (see Pinnell, 1994). In the U.S., researchers followed one group's shifts through recording informal discussions held every two weeks (Pinnell & Woolsey, 1985). Teachers moved from a focus on mechanics and logistics to a willingness to examine theory. However, the study revealed that learning, even with weekly classes and support, took time. An Australian study (Geeke, 1988) provided evidence that the Reading Recovery training course had a strong impact on teachers' views. Teachers valued the learning that occurred.

In both U.S. and Australian studies, teachers commented on the intensity of the training and the anxiety connected with teaching

"behind the screen." A more recent Australian study from a different state was entitled *Changing Lives* (Power & Sawkins, 1991. The results confirmed the potential of the program for teacher change and yielded comments that the inservice sessions were "intense," "exhausting," and "stressful." As in the initial U.S. study, teachers were concerned about teaching loads and scheduling. In all three studies, there was an initial desire on the part of teachers to be told "the answers," and frustration that points were turned back to the group for decision making.

Shannon (1990) undertook a year-long study of a twelve member Reading Recovery teacher class. Her objective was to study the role of verbal challenge and teacher response during live demonstrations. Shannon identified 19 categories of verbal challenge and 21 categories of response. She particularly noted the role of exploratory questions, for which the leader had no specific response in mind. She found generally stable patterns of questioning and response across the eight months of the study; however, changes in focus and changes in teacher acquisition of knowledge were evident in their ability to evaluate, describe and explain behavior. The researcher hypothesized that the opportunity to observe authentic lessons is a key factor in teachers' ability to interpret and transfer learning to their own teaching.

Two other studies focused on the nature of interactions during inservice sessions. In a year-long study of one teacher group, Wilson (1988) recorded and analyzed behind-the-screen and discussion sessions. She found that over the course of the year, teachers increased in their interactions, grew in their ability to describe specific behavior, and were more likely to challenge each others' statements. Rentel and Pinnell's (1987) study of teachers' language focused on growth in ability to provide evidence or "grounds" for statements. They found that teachers grew in their ability to make statements that were supported by specific evidence from student behavior.

Teacher Learning Over Time

Research is needed that goes beyond the training year to discover whether teachers can sustain ongoing development without continuous support. Woolsey's (1991) case study of one teacher indicated the difficulty she experienced in coping with the internal and external forces that impinged on her learning and on the changes

she wanted to make in her classroom teaching. (This teacher taught Reading Recovery for half the day and a first grade classroom the rest of the day). District requirements, other teachers' expectations and opinions, and her own built-in fears were all barriers to continued growth for this teacher. It was only during the second year after training that she was able to change her classroom practice to be more consistent with the theoretical shifts she had made during Reading Recovery training. Another interpretation of Woolsey's research is that theoretical concepts deepen and become more generalizable in the years after initial Reading Recovery training.

Using an interpretive case study approach, Lyons (1993) examined the development of one Reading Recovery teacher's understanding and questioning practices over time. Videotapes of teaching were first analyzed by experts and then discussed with the case study teacher while viewing the videotape. Lyons recorded teacher's comments. Over a three year period the teacher continued to grow in her understanding of how to prompt and/or ask questions that enabled a student to construct learning. Her approach to instruction became more skillful and complex throughout the investigation period. Lyons identified phase one as "trying out" the prompts and questions suggested by Reading Recovery training, phase two as using prompts and questions to test her hypotheses about the child's behavior and then to support the student's problem solving, and phase three as prompting and questioning in response to students' behaviors. The teacher moved from the first phase, in which by her own account she was "parroting questions according to the book," to the third phase when she demonstrated her ability to respond to unexpected answers, to reframe the situation, to step out of her original perspective to take into account the student's perspective. The study also indicated the value of this teacher's opportunity to talk about her work with others. With system support and an inquiry approach, learning is continuous.

Lyons (Lyons, Pinnell, & DeFord, 1993) replicated this study with six Reading Recovery teachers leaders in training. The teachers collected and analyzed observational notes of student behavior, running records of oral reading and writing samples to determine shifts in student learning. Subjects also used journals to record personal reflections about the effects of their teaching decisions on student learning, and they tape-recorded, analyzed, and evaluated

their interactions (verbal and non-verbal) with students throughout the in-service course. The teachers and the researcher met weekly to analyze and evaluate the consequences of their instruction. Lyons' analysis of the audiotaped lessons and of teachers' personal reactions, as documented in journals and conversations with colleagues, indicated that as teachers became more sensitive to emerging behaviors signaling student change, they began to tailor their own behaviors to meet the students' developing abilities. The study suggested five general principles of learning and teaching:

> (1) assisted performance by a more expert other helps individuals -- both students and teachers -- expand and reorganize their understandings;
> (2) the language that surrounds events within a Reading Recovery lesson mediates performance and creates systems of change;
> (3) conversation has an important role in teachers' learning; ongoing discussions provide a scaffold for the growth of understandings and a way to mediate performance by providing bridges between what the teacher already knows and what he or she needs to know to effectively teach;
> (4) collaboration enables teaches to develop theoretical and practical knowledge; and,
> (5) the major shifts in teacher theory development are given impetus by learning the Reading Recovery teaching procedures and are greatly influenced by the inservice course.

Lyons (Lyons, Pinnell & DeFord, 1993) concluded that this model enables teachers to internalize and transform psychological processes. This incorporated a way of "learning how to learn" into their own instructional repertoires. Lifelong learning is a result of the process. It appears that the idea of social construction of knowledge applies not only to children but to teachers as well. The teacher's construction of his/her own knowledge is a critical factor in Reading Recovery teaching.

Another study (Lyons, 1994) focused on thirteen Reading Recovery teachers in training at two points in time -- three and six months. In training sessions, these teachers assisted each other to

engage in thinking about their instructional decision making, called "pedagogical reasoning" in this study. Support took the form of "chains of reasoning" cooperatively built by the group. Teachers reported that this process increased their decision making power in individual teaching. Lyons (1994) claims that

> an important factor in Reading Recovery teaching is how "teachers consult with each other to develop a theoretical base that is grounded in action. They are encouraged to approximate, to generate hypotheses about what the student has learned and controls, to challenge one another, and to provide alternative explanations for the student's behavior with supporting evidence for their hypotheses (p. 285).

Peer consultation is a requirement from the beginning of training and throughout a teacher's participation in the program. This study also showed the powerful role of the Reading Recovery teacher leader in guiding the process.

Studies of teacher learning represent a relatively unexplored yet significant dimension of Reading Recovery. More research, with larger numbers, is needed; yet, an open-ended survey of 205 Reading Recovery teacher leaders supports the findings of case studies. In a lengthy questionnaire, teacher leaders revealed their perspectives on their own training and their role as teacher leaders (Pinnell, Lyons, Constable, and Jennings, 1994). The value of talk with colleagues emerged as a major factor in their learning. During the first year of training, and in subsequent years, respondents reported that reflection, dialogue, and the opportunity to articulate new understandings increased learning. The support of colleagues was valued by teacher leaders, especially after the training year. For these leaders, learning to teach is facilitated through talk with others who share their mission and vision.

Reading Recovery and General Education

The success of Reading Recovery has prompted a number of researchers (Hiebert, 1994; Wong, Groth, O'Flahavan, 1994; Wilson & Daviss, 1994) to recommend general reform based on the principles

of Reading Recovery. It is made quite clear in the teachers' guide to the Reading Recovery program that

> Most children (80 to 90 percent) do *not* require these detailed, meticulous and special Reading Recovery procedures or any modification of them. They will learn to read in classroom programmes of many different kinds... Reading Recovery cannot specify how a classroom programme for children of wide-ranging abilities should be mounted. One would not design a classroom programme by studying the needs of the hardest-to-teach children (Clay, 1993, introduction).

When one looks beyond programmatic elements and specific procedures, the principles and design features of Reading Recovery offer some impetus for change. First, it serves as a surprising demonstration that certain groups of children can make accelerated progress, given the right supportive circumstances. That in itself, has a powerful impact on the U.S. system where there is persistent and frustrating high need for remedial education service. Second, Reading Recovery offers examples of teaching "conversations" that direct children's attention to critical processes in reading and writing. Although the process is more incidental, classroom teachers' conversations with children also reveal powerful, easy-to-understand examples. Third, Reading Recovery illustrates the value of immersing children in a massive amount of reading and writing extended text. These same principles could be applied within several different models for classroom instruction. Fourth, Reading Recovery delivers an effective diagnosis to three subgroups of children, those who are discontinued and probably able to survive, those who are referred and will need long-term help of some kind, and those whose programs were incomplete and who will need more Reading Recovery. This diagnostic utility demonstrates the advantage of establishing "first net" interventions prior to referral. Finally, Reading Recovery teacher training demonstrates the power of observation, talk among peers, support and feedback from an expert other, and long-term professional development (also see Gaffney & Paynter, 1994).

Implementation Issues

Most innovations are confined, small demonstrations that are described in the literature but not taken to a large scale because dissemination processes are not in place. Reading Recovery has reached a large scale by replicating the innovation in new settings (Wilson & Daviss. 1994). Hiebert (1994) says that "Once a program is in place, there appears to be considerable fidelity in the results. Even when the number of tutees jumps 100% as it did at OSU from 1986-87 to 1987-88, similar levels of oral reading were maintained with the same percentage of the cohort" (p. 21). Clay (1994) has recognized systemic factors in the design and implementation system for Reading Recovery.

> [...] my personal orientation in developing Reading Recovery was to take account of the complex interdependence among parts of the system... In an effective intervention the interdependence of variables demands a systemic plan, for an innovation cannot move into an education system merely on the merits of what it can do for children (Clay, p. 128).

Innovators must see change "as a problem of instructional linkage in which there is likely to be conflict about issues which will affect the survival of new programs" (Clay, p. 128).

Education experts not directly associated with the program (for example Adams, 1990; Allington & Walmsley, 1995; and Slavin, 1987) have recognized the potential of the program and encouraged dissemination. Consistent success rates across hundreds of school districts, in urban, rural, and suburban settings, serving "at risk" students in multiethnic and multi-linguistic classrooms, indicate that the current method of implementing, disseminating, evaluating and ensuring program quality has been maintained over the decade that Reading Recovery has been in existence in North America.

Adapting and Changing Reading Recovery

Adapting to new systems. In each new adoption, systemic variables require changes in Reading Recovery in order to deliver the program to the new system. Delivery systems must be devised to

ease the transition without eliminating essential components of the program. For example, assessment procedures were tailored to the U.S. system; books had to vary to reflect local groups and cultures; incentives such as university credit were devised to reward teachers and maintain quality; and new administrative and financial structures were created. Reading Recovery now has a range of alternative structures that are responding to local conditions. Survival requires that the program must continue to be cohesive. Adaptations must preserve integrity (Dunkeld, 1991).

Changing the program over time. In the ten years since its introduction into the U.S., Reading Recovery itself has changed in response to the growing body of knowledge about how children learn to read and write. Based on Clay's 1963-66 research (reported in Clay, 1982), hearing sounds in words and visual analysis was included in the Reading Recovery program from the beginning, well in advance of the field's recognition of the importance of these factors. Changes occurred in the training over a period of years in response to new published research. More attention was given to children's learning how to work at the subword level of analysis. Minor changes were gradually incorporated into the Reading Recovery training. Differences between the second and third editions of *The Early Detection of Reading Difficulties* (Clay, 1979 and 1985) reveal refinements in the procedures that had just been made when the program was first tested in the U.S. A stronger theoretical statement informed teaching as *Becoming Literate: The Construction of Inner Control* (Clay, 1991a) was published; experienced teachers and teacher leaders studied this volume intensively during the following year. A comprehensive review of research and publication about onset and rime and analogy contributed to revision of a new edition of Reading Recovery teaching procedures, *Reading Recovery: A Guidebook for Teachers in Training* (Clay, 1993b). This volume separated the *Observation Survey* (Clay, 1993a) from the Reading Recovery program; teachers in training use both documents. Space here does not permit a detailed analysis of the changes in Reading Recovery; however, procedures for working with words are presented with more elaboration than in previous editions. The focus of the program remained on whole text, with meaning as the center; but teachers learned to help children learn how "words work" to

assist their problem solving while reading and writing. Changes in practice are in the process of gradual assimilation.

A dynamically changing theory is valued in Reading Recovery. The system of implementation and teaching practice are constantly examined in search of the most effective procedures. Individuals have tried applying the principles of the program for other purposes, for example, Bradley's (1991) work with adult emergent readers. Investigation regarding children who do not succeed in the program is continuous (see Clay & Tuck, 1991). Research projects are underway at many of the regional training centers; in addition, adjustments in implementation are investigated whenever necessary.

Moreover, systems are in place to assure that both teachers and teacher leaders receive up-to-date knowledge of new developments in the program. Continued training for teachers takes place on a regular basis; there are also professional development opportunities for teacher leaders. Reading Recovery has developed a self-renewing system, one that accommodates changes, which result from sound research and from carefully monitored developments. Otherwise it would become out-dated as society and theory changed around it.

Intangibles in the Implementation of Reading Recovery

Weaving these elements/structures together are the intangibles revealed in the survey of teacher leaders (Lyons, et. al., 1994). The 205 responding teacher leaders, trained at 16 different regional sites and representing differing years of experience, were articulate in their descriptions of how much they had learned in Reading Recovery training and how they had grown in their professional roles. These teacher leaders responded in terms of their roles both as teachers of children and as teacher educators, since this duality is a feature of their position.

Becoming part of a community. They supported the "sense of community" that they felt through interactions with their colleagues. Indeed, colleague discussion was seen as a principle element in learning during the training year; but experienced teachers were even more enthusiastic about the role of colleagues in their continued learning. As part of the initial training, teacher

leaders (as well as teachers) learn a common language that they can use to talk with each other about their teaching; this conversation continues across sites, regions, and continents, as evidenced by the communication among teachers at international institutes.

Working closely with children. Teacher leaders valued their continued work with children. Reading Recovery teacher leadership is different from other staff development roles in that the teacher educator practices daily through work with children. Leaders reported that they continue to learn from their own experiences teaching children.

Continuing to learn. Everyone involved in Reading Recovery sees him/herself as a learner. Teachers do not have to be defensive about "less than perfect" lessons. Everyone knows that individuals are developing their skills and learn from each other. Reading Recovery contributes to the creation of learning so that improvement is a constant goal.

Holding a common vision. Everyone involved in Reading Recovery shares a vision that is built through case after case of student success on the part of students who were the lowest achievers in reading. It is a vision of what is possible. British inspectors suggested that the results of Reading Recovery "show what can be achieved by the combination of decisive policy and professional will" (Frater & Staniland, 1994, p. 149).

Among others, intangible characteristics such as sense of community, closeness to children, continued learning, and common vision form the foundation that makes Reading Recovery a cohesive system. In the implementation of the program, varied patterns emerge, but the whole is a disciplined piece of work that is focused on student success (Clay, 1994).

Conclusion

In an article in 1991, Clay (1991b) stated firmly that "there is no room for complacency" (p. 71). Describing a list of "surprises," such as the relative brevity of the intervention period, the variety among learners and the differences in individual programs, Clay said that "a program full of surprises keeps those involved in it thinking about new possibilities for children" (p. 71).

This chapter includes a review of over 50 studies of Reading Recovery. In the research, different perspectives are reflected. The studies were undertaken in different contexts and for a variety of purposes. All studies found Reading Recovery to be very powerful in the initial intervention, long-term results are positive in most studies, although there is some variation by context. The program's unique features -- intensive teaching, professional development, and a network of professional support are highlighted in the research on teacher learning and illustrate why a program for children has captured so much attention in the research community. Several conclusions may be drawn from this review:

- Reading Recovery offers powerful learning opportunities for both children and teachers; more research is needed on the nature of this learning and factors related to it.

- Children who do not reach the discontinuing criteria make progress in Reading Recovery but need more support in subsequent years. More research is needed that examines children for whom Reading Recovery is not a sufficient intervention program.

- The implementation plan for Reading Recovery offers a self-renewing system that continues to improve over time. Rather than concentrating on first-year implementations, more research is needed on the long term implementation of Reading Recovery as projects mature over several years time.

With documentation on over 100,000 students over a ten-year period in North America and thousands more in New Zealand and Australia, Reading Recovery offers a body of evidence that can not be ignored as we move forward in reforming our educational system. While applications should be made with caution, undoubtedly, there are powerful lessons to be learned.

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New

Educational Report #24

Talking About Literary Texts:
Research Findings on Literature Discussion Groups
in the Elementary Classroom

by Shelley Allen

Shelley Allen's manuscript presents a theoretical rationale for the use of small group discussions of literature in elementary classrooms, synthesizes recent research findings on elementary literature groups, and discusses implications for classroom practice. Allen's research provides strong support for the inclusion of literary discussion groups in reading programs, and her study indicates that teachers play a key role in creating and fostering collaborative literary dialogues during small group sessions.

"Talking About Literary Texts" can be purchased for $5 from the MLK Center, 204 Ramseyer Hall, 29 West Woodruff Ave., Columbus OH 43210. Make checks payable to The Ohio State University.

New

Educational Report #25

Roots and Branches of Schema Theory: A Historical Overview

by Laurence Sipe

Schema theory exerted an enormous influence on reading research in the 1970s and '80s, an influence which has repercussions on contemporary models of reading acquisition. In this manuscript, Sipe takes a historical approach in discussing the conceptual roots of schema theory. He explores the broad philosophical and intellectual framework in which schema theory arose; reviews the classic articles on the subject of schemata and the various refinements the theory has undergone; and, in closing, examines schema theory's continuing influence on research of the reading process.

Schema Theory can be purchased for $5 from the MLK Center, 204 Ramseyer Hall, 29 West Woodruff Ave., Columbus OH 43210. Make checks payable to The Ohio State University.

New

Educational Report #26

Enhancing Teacher Education through Reflective Practice

by Janice Eitlegeorge

Eitlegeorge reviews the literature on reflective practices in teacher education, and highlights the need for more teacher education programs that offer systematic assistance in reflective practice with the goal of self-directed reflection. As she explores the complexities involved in the pedagogy of reflective thought, Eitlegeorge makes a cogent argument that models of collegiality and collaboration must be fostered in the preservice years and further encouraged by administrators in the schools.

Enhancing Teacher Education can be purchased for $5 from the MLK Center, 204 Ramseyer Hall, 29 West Woodruff Ave., Columbus OH 43210. Make checks payable to The Ohio State University.

Forthcoming

Educational Report: Special Topics Issue

Cultural Mosaics:
An Annotated Bibliography of Multicultural Resources for the K--12 Classroom
1993-1995

We live in a world of diverse cultures and rich literary traditions. Unfortunately, the vast majority of the materials used in the classroom reflect only that segment of society referred to as the mainstream. Even teachers who are interested in using literature and other resources which reflect a broad range of people and traditions often have difficulty finding them. The materials compiled in Volumes I and II of *Cultural Mosaics* are meant to facilitate this search. Volume I contains annotations of multicultural picturebooks, novels, collections of fiction, folklore and poetry. Volume II includes non-fiction books, computer software (and internet resources), magazines and journals, audio, video and film, and teacher resources. Extensive subject, author and illustrator indexes have been included to make the listings more accessible. *Cultural Mosaics* will be a helpful tool as you search for new and exciting resources for your students and children.

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